

COMPARATIVE PROPERTIES OF NATURAL AND SYNTHETIC RUBBERS

COMPARAISON DES PROPRIÉTÉS DES CAOUTCHOUCS NATURELS ET SYNTHÉTIQUES

Material	Neoprene Chloroprene	Nitrile Butadiene Acrylonitrile	EPDM Ethylene Propylene Polymer	Butadiene Styrene	NATURAL RUBBER Polyisoprene	SANTOPRENE® TPE
Solid Duro Range	40-80	40-80	40-90	60-80	40-60	35-87
ASTM Code	CR	NBR	EPDM	SBR	NR	-
Sponge Duro Range	20-80	-	20-80	-	-	-
Tensile Strength PSI	1500-2000	1000-1500	1000-2000	1000-2000	1500-3000	520-4000
Tear Resistance	good	fair	fair	fair	very good	fair
Abrasion Resistance	excellent	good	excellent	very good	excellent	very good
Compression Set	good	good	good	good	good	good
Acid Resistance	very good	good	excellent	fair to good	fair to good	excellent
Rebound - cold	very good	good	very good	good	excellent	very good
- hot	very good	good	very good	good	excellent	very good
Adhesion to Metals	excellent	excellent	good	very good	excellent	good
Resistance to Oxidation	very good	good	excellent	fair	good	excellent
Lubricating Oil	good	very good	poor	poor	poor	poor
Flame	good	poor	poor	poor	poor	good
Animal & Vegetable Oil	good	very good	good	good	good	good
Sunlight Aging	very good	poor	excellent	poor	poor	very good
Oil & Gasoline	good	excellent	poor	poor	poor	poor
Ozone	very good	fair	excellent	poor	fair	excellent
Water Absorption	good	good	very good	very good	excellent	very good
Material	HYPALON Chlorosulfonated Polyethylene	SILICONE Polysiloxane Polymer	CPE VITON Fluoroelastomer	EPDM Chlorinated Polyethylene	NEOPRENE BLEND-SPONGE	FLEXIBLE POLYVINYL CHLORIDE
Solid Duro Range	70	60	30-80	75	-	-
ASTM Code	CSM	-	SI	FPM	CPE	EPDM-CR
Sponge Duro Range	-	-	50-80	80	50-80	20-80
Tensile Strength PSI	1500	1000-1500	900-1100	1400	-	-
Tear Resistance	fair	good	poor to good	fair	fair	good
Abrasion Resistance	excellent	good	poor	good	good	excellent
Compression Set	fair	fair	good	good	good	good
Acid Resistance	very good	fair	good	excellent	very good	very good
Rebound - cold	fair	good	excellent	good	fair	fair
- hot	good	good	excellent	very good	good	fair
Adhesion to Metals	excellent	fair	excellent	good	good	fair
Resistance to Oxidation	very good	good	excellent	excellent	excellent	very good
Lubricating Oil	very good	excellent	fair	excellent	good	good
Flame	good	fair	good	excellent	good	good
Animal & Vegetable Oil	good	excellent	very good	excellent	good	poor
Sunlight Aging	excellent	good	excellent	excellent	excellent	good
Oil & Gasoline	good	very good	fair	excellent	good	fair
Ozone	excellent	very good	excellent	excellent	excellent	excellent
Water Absorption	very good	good	excellent	very good	very good	good

This is a guide of recommendations only, based on studies of technical literature, polymer manufacturers claims, and field tests. Different compounding of elastomers, production methods, and the results of accelerated laboratory testing conditions could alter these properties and characteristics.